Global Logistics and Enterprise Systems I

8419 36 weeks

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Acknowledgments

An industry group, consisting of the following representatives, validated the task/competency lists:

Dr. Raymond F. Boykin, Research Professor, SAP Fellow, Virginia State University, Petersburg, Va.
Travis J. James, Supply Chain Management and Logistics Manager, Colonial Heights, Va.
Michael Williams, Chief Executive Officer, Logistics Management Resources, Inc., Prince George, Va.

A curriculum development team, consisting of the following teachers, designed the framework elements:
Course Description

Suggested Grade Level: 10 or 11 or 12

Logistics is moving the right goods to the right place at the right time for the right price at the right quality. The two-course sequence is designed to build a workforce to capitalize on the projections from the Commonwealth Center of Advanced Logistics Systems (CCALS) to meet the rapidly increasing demand for high-skilled, high-wage supply chain and logistics systems professionals.

This first course in the sequence will introduce students to global logistics in a virtual enterprise systems environment. Topics include navigating logistics management and enterprise resource planning (ERP) systems while managing procurement, fulfillment, and warehouse processes.
### Task Essentials Table

- Tasks/competencies designated by plus icons (⊕) in the left-hand column(s) are essential
- Tasks/competencies designated by empty-circle icons (○) are optional
- Tasks/competencies designated by minus icons (⊖) are omitted
- Tasks marked with an asterisk (*) are sensitive.

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Navigating Enterprise Resource Planning (ERP) Systems
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### Managing Procurement Processes

| 86 | Describe the relationship between procurement and supply chain management. |
| 87 | Describe procurement objectives. |
| 88 | Describe supplier development, selection, evaluation, and relationship. |
| 89 | Identify quality issues in procurement. |
| 90 | Describe global procurement. |
| 91 | Describe the procurement process in an ERP system, including organization and master data. |
| 92 | Demonstrate the procurement process in an ERP system. |
| 93 | Prepare procurement reports in an ERP system. |

### Managing Fulfillment and Customer Service Processes

| 94 | Describe the correlation among demand management, order management, and customer service. |
| 95 | Apply a demand forecasting model to a business scenario. |
| 96 | Identify the order cycle and its components. |
| 97 | Describe customer service as it pertains to logistics. |
| 98 | Describe the fulfillment process in an ERP system, including organization and master data. |
| 99 | Describe how ERP systems improve the customer relations of an organization. |
| 100 | Describe how e-commerce benefits from using ERP systems. |
| 101 | Demonstrate the fulfillment process in an ERP system. |
| 102 | Demonstrate integration of fulfillment with other processes. |
| 103 | Prepare fulfillment process reports. |

**Managing Warehouse Processes**

| 104 | Classify inventory by applying a variety of methods. |
| 105 | Describe inventory costs and trade-offs. |
| 106 | Differentiate among a variety of inventory flow patterns. |
| 107 | Describe the types of inventory management (e.g., accuracy, accountancy, metrics, IT, compliance, preventive maintenance, obsolescence). |
| 108 | Identify emerging approaches to managing inventory. |
| 109 | Describe the role of warehousing in a logistics system. |
| 110 | Differentiate among public, private, contract, and multiclient warehousing. |
| 111 | Describe considerations when designing warehousing facilities. |
| 112 | Analyze operational issues in warehousing. |
| 113 | Identify the four goods movements of inventory management. |
| 114 | Describe warehouse management and its basic organizational levels. |
| 115 | Analyze the master data associated with warehouse management operations. |
Integrate inventory and warehouse management processes with other processes.

Manage warehouse processes in an ERP system.

Prepare warehouse management process reports in an ERP system.

Legend: ☑ Essential ☐ Non-essential ☑ Omitted

Curriculum Framework

Exploring Logistics Management

Task Number 39

Define logistics.

Definition

Definition should include

- managing all aspects of the supply chain
- identifying resources
- determining the way resources are acquired, transported, and stored along the supply chain.

Common Career Technical Core

TD1
Describe the nature and scope of the Transportation, Distribution & Logistics Career Cluster and the role of transportation, distribution and logistics in society and the economy.

Task Number 40

Identify Career Clusters and Career Pathways related to logistics
Definition

Identification should include any segment of the following:

- Business Management and Administration—Business Information Management
- Manufacturing—Logistics and Inventory Control; and Manufacturing Production Process Development
- STEM—Engineering and Technology
- Transportation, Distribution and Logistics—Facility and Mobile Equipment Maintenance; Health, Safety and Environmental Management; Logistics Planning and Management Services; Sales and Service; Transportation Operations; Transportation Systems/Infrastructure Planning, Management and Regulation; and Warehousing and Distribution Center Operations

Task Number 41

Identify the economic impacts of logistics.

Definition

Identification should include the way logistics benefits

- supply and demand
- free markets
- job-growth efficiencies.

Common Career Technical Core

TD1
Describe the nature and scope of the Transportation, Distribution & Logistics Career Cluster and the role of transportation, distribution and logistics in society and the economy.

Task Number 42

Describe the systems and total-cost approaches to logistics.

Definition

Description should include
• systems approach—one central supply-chain management concept for all departments within any organization (all departments are interrelated)
• total-cost approach—also referred to as the total logistics concept, a measurement of costs that follows products through all aspects of the supply chain.

Task Number 43

Define supply chain and marketing channels.

Definition

Definition should include

• supply chain—a system of organizations, people, activities, information, and resources needed to move a product or service from supplier to customer
• marketing channels—manufacturers, wholesalers, and retailers and the procedures required to move goods through the supply chain.

Task Number 44

Describe the activities in the supply chain and logistics channel.

Definition

Description should include

• order-to-cash process
• procure-to-pay process
• production process
• transportation and distribution
• reverse logistics.

Common Career Technical Core

TD3
Describe the key operational activities required of successful transportation, distribution and logistics facilities.

Task Number 45
Describe the organizational structure for logistics.

Definition

Description should include the following components as main departments:

- Distribution
- Inventory
- Warehousing
- Transportation
- Supply chain
- Procurement
- Fulfillment
- Customer service
- Production
- Packaging
- Material handling
- Business processes and integration
- Logistics information systems
- Enterprise resource planning
- Business intelligence
- Management information systems

Task Number 46

Differentiate between the traditional and contemporary organizational designs for logistics.

Definition

Differentiation should include

- traditional—logistics are managed by each department in a business
- contemporary—logistics are managed centrally for all departments.

Common Career Technical Core

TD2
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

Task Number 47
Describe productivity issues in logistics.

Definition

Description should include

- routing optimization
- third-party logistics (3PL)
- lean logistics
- waste.

Common Career Technical Core

TD-LOG2
Analyze and improve performance of logistics systems to provide logistics planning and management services.

Task Number 48

Identify issues associated with reverse logistics.

Definition

Identification should include those issues associated with managing the logistics process

- from point of consumption back to the value of origin in the supply chain
- for the purpose of recapturing value or proper disposal.

Common Career Technical Core

TD-LOG2
Analyze and improve performance of logistics systems to provide logistics planning and management services.

Task Number 49

Describe common operational measures of logistics performance.

Definition
Description should include effectiveness measures (e.g., order cycle, on-time delivery, customer complaints) and efficiency measures (e.g., units processed per unit of time, unused warehouse space, freight costs).

Common Career Technical Core

TD-LOG2
Analyze and improve performance of logistics systems to provide logistics planning and management services.

Task Number 50

Describe the variables affecting supply chain management implementation.

Definition

Description should include

- demand
- network
- production and scheduling
- transportation.

Task Number 51

Identify potential barriers to supply chain management implementation.

Definition

Identification should include

- technology
- information
- measurement system(s)
- personnel (e.g., morale, reluctance to change, willingness to work together).

Common Career Technical Core

TD-LOG1
Develop solutions to provide and manage logistics services for the company and customers.
Task Number 52

Describe supply chain integration.

Definition

Description should include identifying and connecting all variables, partners, and other businesses that can affect production costs by their involvement at any point along the supply chain.

Task Number 53

Identify the critical elements of managing supply chains and logistics operations.

Definition

Identification should include

- variables that can be controlled/influenced and those that cannot
- relationships between variables along the supply chain.

Common Career Technical Core

TD-LOG2
Analyze and improve performance of logistics systems to provide logistics planning and management services.

Navigating Enterprise Resource Planning (ERP) Systems

Task Number 54
Describe information technology challenges in logistics.

Definition

Description should include the reliability of effective and efficient information processing, such as

- system failures
- data migration issues
- cyber security vulnerabilities
- platform integration.

Task Number 55

Describe the types of logistical information systems.

Definition

Description should include

- office automation systems
- communication systems
- transaction processing systems
- management and executive information systems
- decision support systems
- enterprise systems.

Task Number 56

Describe the relationship between data requirements and logistics.

Definition

Description should include

- defining analysis approaches and techniques
- defining and reviewing assumptions
- identifying data sources
• collecting data  
• collecting validation of data.

**Common Career Technical Core**

**BM-BIM3**
Access, evaluate and disseminate information for business decision making.

---

**Task Number 57**

**Describe the effects of Internet technologies on logistics.**

**Definition**

Description should include

• disintermediation  
• cost  
• cycle time  
• competitive advantages.

**Common Career Technical Core**

**TD2**
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

---

**Task Number 58**

**Define management information system (MIS).**

**Definition**

Definition should include the following system components:

• Hardware  
• Software  
  o Life cycle  
  o Documentation  
  o Maintenance  
• Data  
  o Collection and retention of data
Dissemination of data for decision making

- Procedures
  - Project Planning
  - Risk analysis
- People

**Common Career Technical Core**

**BM5**
Implement systems, strategies and techniques used to manage information in a business.

---

**Task Number 59**

**Describe computer hardware, software, networks, and the basic structure of the Internet.**

**Definition**

Description should include the following components:

- Hardware
  - Internal devices
    - Power supply
    - Cards
    - Memory
  - Peripheral devices
    - Printer
    - Scanner
    - External Hard Drive
  - Mobile Devices
- Software
  - Windows
  - Unix
  - Linux
  - Android
- Networks
  - Wired
    - Switches vs Routers
  - Wireless (Wi-Fi)
    - IEEE 802.11 protocol
      - 802.11a, 802.11b/g/n, and 802.11ac
  - LAN (local area network)
  - WAN (wide area network)
- Basic Structure of the Internet
Task Number 60

Describe the components and purpose of a database application system.

Definition

Description should include the following components:

- Data
- Hardware
- Software
  - SQL
  - Models:
    - Hierarchical
    - Network
    - Relational
    - Object/Relational
    - Object-Oriented
    - Semi-structured
- Users
  - Naive or parametric end users
    - Bank teller
  - Sophisticated end users
    - Analyst
  - Stand-Alone users
    - Uses packaged systems
- Purpose
- Organize data
- Store data
- Retrieve data
  - Current
    - See current performance
  - Statistical
Common Career Technical Core

BM-BIM3
Access, evaluate and disseminate information for business decision making.

Task Number 61

Describe how MIS affects organizational strategy.

Definition

Description should include

- management by objectives
- decision support
- MIS in small vs. large organizations
- benefits of organized information.

Common Career Technical Core

BM5
Implement systems, strategies and techniques used to manage information in a business.

Task Number 62

Differentiate among the five forces that determine industry structure.

Definition

Differentiation should compare the variables that affect profits:

- Threat of new entrants to a market
- Bargaining power of suppliers
- Bargaining power of customers
- Threat of substitute products
- Degree of competitive rivalry

Task Number 63
Define *business processes*.

**Definition**

Definition should include

- silo effects
- integration
- structured processes
- dynamic processes.

---

**Task Number 64**

Describe the relationship between business processes and information systems.

**Definition**

Description should include

- types of information systems
  - transaction processing
  - management information
  - decision support
  - communications and collaborations
- a variety of business processes
- how the information system affects the business process.

**Common Career Technical Core**

**BM5**
Implement systems, strategies and techniques used to manage information in a business.

**BM6**
Implement, monitor and evaluate business processes to ensure efficiency and quality results.

---

**Task Number 65**

Describe the virtualized computing environment.

**Definition**
Description should include

- operating and utility systems
- storage
- memory
- software
- allocation and reassignment of input/output and other processes
- data backup
- automated problem solving and troubleshooting
- tools for monitoring and managing systems.

---

**Task Number 66**

**Describe the need for information quality.**

**Definition**

Description should include

- defining information quality
- providing a rationale for information quality
- comparing data with information
- identifying the negative effects of poor information
- measuring and managing project management goals (e.g., completeness of records, consistency, timeline, accuracy)
- adjusting data.

**Common Career Technical Core**

**BM-BIM3**
Access, evaluate and disseminate information for business decision making.

---

**Task Number 67**

**Describe the value-chain structure.**

**Definition**

Description should include

- firm infrastructure
• human resource management
• technology development
• procurement
• inbound logistics
• operations
• outbound logistics
• marketing and sales
• services.

Task Number 68

Analyze the integration of business processes.

Definition

Analysis should include

• integration points
• benefits
• impacts
• end-to-end flows.

Common Career Technical Core

BM6
Implement, monitor and evaluate business processes to ensure efficiency and quality results.

Task Number 69

Improve a business process, using an information system.

Definition

Improvement should be based on increased efficiencies or effectiveness of a given project’s business process. The project should include

• overview of business process
• identification of information system
• as-is versus to-be maps
• outcome and results.
Common Career Technical Core

**BM5**
Implement systems, strategies and techniques used to manage information in a business.

**BM6**
Implement, monitor and evaluate business processes to ensure efficiency and quality results.

---

**Task Number 70**

**Describe the characteristics of fundamental collaboration processes.**

**Definition**

Description should include

- style
- goals
- shared responsibility
- accountability

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**Task Number 71**

**Research the evolution of ERP systems.**

**Definition**

Research should include

- the history of ERP
- major vendors
- system transformation over time
- current trends
- future expectations.

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**Common Career Technical Core**

**TD2**
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.
Task Number 72

Describe the elements of an ERP system and the major ERP software vendors.

Definition

Description should include

- process modules
- vendors and their systems
- small and medium enterprises (SME) ERP vendors
- cloud ERP vendors.

Task Number 73

Describe how enterprise systems support business processes.

Definition

Description should include

- information flow
- transaction data
- real-time information
- common database.

Task Number 74

Evaluate the challenges of ERP system implementation.

Definition

Evaluation should include

- project-management issues
• cost
• legacy systems
• change management
• technical resources and requirements.

Common Career Technical Core

BM5
Implement systems, strategies and techniques used to manage information in a business.

Task Number 75

Identify the data categories in an ERP system.

Definition

Identification should include

• organizational data
• rule and policy data
• master data
• transactional data.

Task Number 76

Identify ERP reporting options.

Definition

Identification should include

• standard reports
• report variants
• information system reports
• custom reports.

Common Career Technical Core

ST2
Use technology to acquire, manipulate, analyze and report data.
Task Number 77

Navigate the ERP system, accessing help resources as needed.

Definition

Navigation elements should include

- ERP interface
- basic system navigation
- help resources
- input fields
- transaction screens.

Task Number 78

Describe business intelligence systems.

Definition

Description should include

- the need for business intelligence
- business intelligence systems available
- reporting applications
- business intelligence tools
- business intelligence components.

Task Number 79

Research the effect of social media and Web 2.0 on organizations and their processes.

Definition

Research should identify applications that illustrate how social media and Web 2.0 tools are used to
• reach and engage customers
• empower and connect employees
• coordinate with suppliers and partners
• gather data and research
• collaborate and innovate
• provide internal agility in processes, systems, and decision making.

Common Career Technical Core

TD2
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

Task Number 80

Perform a data-mining and analytics operation in an ERP system.

Definition
Performance should include

• running data-mining applications
• applying data-mining techniques
• completing a market analysis
• creating decision trees
• identifying other analytical capabilities.

Common Career Technical Core

ST2
Use technology to acquire, manipulate, analyze and report data.

Task Number 81

Describe the components of MIS and the business processes it manages.

Definition
Description should include
Task Number 82

Identify the characteristics and activities of the system development life cycle.

Definition

Identification should include

- different models in use (e.g., waterfall model)
- the procurement process
- distinct activities
  - requirements
  - definition
  - design
  - development
  - testing (developmental and operational)
  - implementation
  - maintenance
- documentation and configuration management.

Task Number 83

Describe cyber security.

Definition

Description should include

- applicable standards
- security policy
- certification and accreditation
- best practices
- data sharing between systems.
Task Number 84

Analyze the effectiveness of an organization’s security program.

Definition

Analysis should include

- security policies
- assurance levels
- system-level and component-level safeguards
- penetration testing.

Task Number 85

Determine the technical safeguards for a security program.

Definition

Determination of safeguards should include

- vulnerability analysis
- security analysis report
- applicable standards
- certification and accreditation requirements (i.e., clearance levels).

Managing Procurement Processes

Task Number 86
Describe the relationship between procurement and supply chain management.

Definition

Description should include

- information flow
- material flow
- integration.

Task Number 87

Describe procurement objectives.

Definition

Description should include

- cost
- quality
- delivery
- service.

Task Number 88

Describe supplier development, selection, evaluation, and relationship.

Definition

Description should include

- process
- information requirements
- stakeholders
- systems.

Common Career Technical Core

TD4
Task Number 89

Identify quality issues in procurement.

Definition

Identification should include

- inspection
- statistical process control (SPC)
- returns
- service.

Task Number 90

Describe global procurement.

Definition

Description should include

- organization elements
- sourcing strategies
- advantages
- disadvantages.

Common Career Technical Core

TD4
Identify governmental policies and procedures for transportation, distribution and logistics facilities.

Task Number 91

Describe the procurement process in an ERP system, including organization and master data.
**Definition**

Description should include

- purchasing organization
- vendor master
- material master
- transactions.

**Common Career Technical Core**

**TD4**
Identify governmental policies and procedures for transportation, distribution and logistics facilities.

---

**Task Number 92**

**Demonstrate the procurement process in an ERP system.**

**Definition**

Demonstration should include

- purchase order (PO) creation
- goods receipt
- invoice receipt
- vendor payment.

---

**Task Number 93**

**Prepare procurement reports in an ERP system.**

**Definition**

Preparation should include

- pricing model
- management
- quality control
- product life cycle
- supply chain
• selection process.

Common Career Technical Core

ST2
Use technology to acquire, manipulate, analyze and report data.

Managing Fulfillment and Customer Service Processes

Task Number 94
Describe the correlation among demand management, order management, and customer service.

Definition
Description should include

• data requirements
• data transfer points
• stakeholders.

Common Career Technical Core

TD-SAL1
Analyze the ongoing performance of transportation, logistics and distribution-related sales and service operations.

Task Number 95
Apply a demand forecasting model to a business scenario.

Definition
Description should include

• different types of forecasts
  o economic forecasts
  o environmental forecasts
  o market and product forecasts
  o sales forecasts
• short, medium and long-term planning
• corporate planning
• product and market planning
• sales planning
• financial planning
• forecasting methods
• historical analogy
• moving averages
• exponential smoothing
• correlation
• surveys.

Task Number 96

Identify the order cycle and its components.

Definition

Identification should include

• sales order
• pick, pack, ship
• accounting documents.

Task Number 97

Describe customer service as it pertains to logistics.

Definition

Description should include

• process
• costs
• business impacts.

Common Career Technical Core

TD-SAL2
Demonstrate the use of sales and ongoing service of products and services that are transportation related to promote development of existing and future clients and customers.

Task Number 98

Describe the fulfillment process in an ERP system, including organization and master data.

Definition

Description should include

• sales organization structure
• customer master
• material master
• transactions.

Task Number 99

Describe how ERP systems improve the customer relations of an organization.

Definition

Description should include

• real-time information
• single point of information
• process integration.

Common Career Technical Core

TD-SAL2
Demonstrate the use of sales and ongoing service of products and services that are transportation related to promote development of existing and future clients and customers.

---

**Task Number 100**

**Describe how e-commerce benefits from using ERP systems.**

**Definition**

Description should include

- real-time information
- inventory visibility
- virtual supply chain.

---

**Task Number 101**

**Demonstrate the fulfillment process in an ERP system.**

**Definition**

Demonstration should include

- sales order
- goods issue
- billing
- customer payment.

---

**Task Number 102**

**Demonstrate integration of fulfillment with other processes.**

**Definition**

Demonstration should integrate

- sales-generated production
- production order
- accounting impacts
- sales order delivery.

---

**Task Number 103**

**Prepare fulfillment process reports.**

**Definition**

Preparation should include

- purchase-order report
- pending purchase-order report
- expected delivery-date report
- integrated marketing communication (IMC) tracking-system report
- profit/loss report
- cost-analysis fulfillment report.

**Common Career Technical Core**

**ST2**

Use technology to acquire, manipulate, analyze and report data.

---

**Managing Warehouse Processes**

---

**Task Number 104**

**Classify inventory by applying a variety of methods.**

**Definition**

Classification should include the inventory

- type
- value
- usage
• rate
• spoilage.

Common Career Technical Core

MN-LOG4
Manage inventory using logistics and control processes and procedures.

TD-WAR1
Demonstrate efficient and effective warehouse and distribution center operations.

TD2
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

Task Number 105
Describe inventory costs and trade-offs.

Definition

Description should include

• ordering
• holding
• obsolescence
• shortage.

Task Number 106
Differentiate among a variety of inventory flow patterns.

Definition

Differentiation should include

• inventory type
• internal vs. external
• first in, first out (FIFO) vs. last in, first out (LIFO)
• costs.

Task Number 107
Describe the types of inventory management (e.g., accuracy, accountancy, metrics, IT, compliance, preventive maintenance, obsolescence).

**Definition**

Description should include

- inventory type
- inventory value
- inventory models
- information systems.

**Common Career Technical Core**

**MN-LOG4**
Manage inventory using logistics and control processes and procedures.

---

**Task Number 108**

**Identify emerging approaches to managing inventory.**

**Definition**

Identification should include

- third-party logistics (3PL) and fourth-party logistics (4PL)
- vendor managed
- consignment
- leanness
- drop ship.

**Common Career Technical Core**

**MN-LOG4**
Manage inventory using logistics and control processes and procedures.

**TD2**
Describe the application and use of new and emerging advanced techniques to provide solutions for transportation, distribution and logistics problems.

---

**Task Number 109**
Describe the role of warehousing in a logistics system.

Definition

Description should include

• storage
• material handling
• order fulfillment
• automation.

Common Career Technical Core

TD3
Describe the key operational activities required of successful transportation, distribution and logistics facilities.

Task Number 110

Differentiate among public, private, contract, and multiclient warehousing.

Definition

Differentiation should include

• facilities
• ownership
• bonding
• costs.

Common Career Technical Core

TD-WAR3
Analyze compliance with company policies and government laws and regulations in warehouse and distribution operations.

Task Number 111
Describe considerations when designing warehousing facilities.

Definition

Description should include

- types of product
- flow patterns
- automation
- size
- costs.

Task Number 112

Analyze operational issues in warehousing.

Definition

Analysis should include

- hours of operation
- analysis of just-in-time or conventional logistics methods
- channels of distribution and a cost and safety analysis
- analysis of peak and non-peak purchase order fulfillment demands
- labor-cost analysis
- climate control loss-reduction analysis
- asset utilization and accountability
- inventory control (e.g., automatic unit replacement)
- scheduled maintenance and repair of equipment.

Common Career Technical Core

TD-WAR2
Describe ways to improve the performance of warehouse and distribution operations.

Task Number 113
Identify the four goods movements of inventory management.

Definition

Identification should include

- goods receipt
- goods issue
- transfer posting
- returns.

Common Career Technical Core

MN-LOG4
Manage inventory using logistics and control processes and procedures.

Task Number 114

Describe warehouse management and its basic organizational levels.

Definition

Description should include

- receiving
- material handling
- storage
- packaging
- distribution
- shipping.

Task Number 115

Analyze the master data associated with warehouse management operations.

Definition
Analysis should include

- material master
- storage location
- warehouse
- storage racks and bins.

---

**Task Number 116**

**Integrate inventory and warehouse management processes with other processes.**

**Definition**

Integration should include

- production
- sales
- financial
- quality management
- procurement.

**Common Career Technical Core**

**MN-LOG4**
Manage inventory using logistics and control processes and procedures.

**TD-WAR1**
Demonstrate efficient and effective warehouse and distribution center operations.

---

**Task Number 117**

**Manage warehouse processes in an ERP system.**

**Definition**

Management should include analyzing the efficiency of the supply chain electronic data interchange (EDI) and access to vendors, delivery systems, and clients.

**Common Career Technical Core**
TD-WAR1
Demonstrate efficient and effective warehouse and distribution center operations.

Task Number 118

Prepare warehouse management process reports in an ERP system.

Definition

Preparation should include

- inventory controls
- inventory life cycle rotation
- automated re-stock ordering
- asset utilization and accountability
- production forecasting
- production planning and scheduling
- quality inspections
- process management just-in-time (JIT) system or conventional logistics-management system (LMS)
- delivery POS system
- inventory tracking system
- receipt on delivery freight-tracking system (FTS).

Common Career Technical Core

ST2
Use technology to acquire, manipulate, analyze and report data.

TD-WAR1
Demonstrate efficient and effective warehouse and distribution center operations.

SOL Correlation by Task

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Identify Career Clusters and Career Pathways related to logistics</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Identify the economic impacts of logistics.</td>
<td>History and Social Science: GOVT.1, GOVT.15</td>
</tr>
<tr>
<td></td>
<td>Task</td>
<td>Course</td>
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</tr>
<tr>
<td>42</td>
<td>Describe the systems and total-cost approaches to logistics.</td>
<td>History and Social Science: GOVT.1, GOVT.15</td>
</tr>
<tr>
<td>43</td>
<td>Define supply chain and marketing channels.</td>
<td>English: 10.3, 10.5, 11.3, 11.5, 12.3, 12.5</td>
</tr>
<tr>
<td>44</td>
<td>Describe the activities in the supply chain and logistics channel.</td>
<td></td>
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<tr>
<td>45</td>
<td>Describe the organizational structure for logistics.</td>
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<tr>
<td>46</td>
<td>Differentiate between the traditional and contemporary organizational designs for logistics.</td>
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<tr>
<td>47</td>
<td>Describe productivity issues in logistics.</td>
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<tr>
<td>48</td>
<td>Identify issues associated with reverse logistics.</td>
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<tr>
<td>49</td>
<td>Describe common operational measures of logistics performance.</td>
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<tr>
<td>50</td>
<td>Describe the variables affecting supply chain management implementation.</td>
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<td>51</td>
<td>Identify potential barriers to supply chain management implementation.</td>
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<tr>
<td>52</td>
<td>Describe supply chain integration.</td>
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<tr>
<td>53</td>
<td>Identify the critical elements of managing supply chains and logistics operations.</td>
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<tr>
<td>54</td>
<td>Describe information technology challenges in logistics.</td>
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<tr>
<td>55</td>
<td>Describe the types of logistical information systems.</td>
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<tr>
<td>56</td>
<td>Describe the relationship between data requirements and logistics.</td>
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<td>57</td>
<td>Describe the effects of Internet technologies on logistics.</td>
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<tr>
<td>58</td>
<td>Define management information system (MIS).</td>
<td>English: 10.3, 10.5, 11.3, 11.5, 12.3, 12.5</td>
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<tr>
<td>59</td>
<td>Describe computer hardware, software, networks, and the basic structure of the Internet.</td>
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<tr>
<td>60</td>
<td>Describe the components and purpose of a database application system.</td>
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<tr>
<td>61</td>
<td>Describe how MIS affects organizational strategy.</td>
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<tr>
<td>62</td>
<td>Differentiate among the five forces that determine industry structure.</td>
<td></td>
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<tr>
<td>63</td>
<td>Define business processes.</td>
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<td>Describe the relationship between business processes and information systems.</td>
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<td>Describe the virtualized computing environment.</td>
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<td>66</td>
<td>Describe the need for information quality.</td>
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<tr>
<td>67</td>
<td>Describe the value-chain structure.</td>
<td></td>
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<td>68</td>
<td>Analyze the integration of business processes.</td>
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<td>69</td>
<td>Improve a business process, using an information system.</td>
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<td>70</td>
<td>Describe the characteristics of fundamental collaboration processes.</td>
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<tr>
<td>71</td>
<td>Research the evolution of ERP systems.</td>
<td>English: 10.8, 11.8, 12.8</td>
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<tr>
<td>72</td>
<td>Describe the elements of an ERP system and the major ERP software vendors.</td>
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<td>73</td>
<td>Describe how enterprise systems support business processes.</td>
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<td>Evaluate the challenges of ERP system implementation.</td>
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<td>Identify the data categories in an ERP system.</td>
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<td>Identify ERP reporting options.</td>
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<td>Navigate the ERP system, accessing help resources as needed.</td>
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<td>78</td>
<td>Describe business intelligence systems.</td>
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<td>79</td>
<td>Research the effect of social media and Web 2.0 on organizations and their processes.</td>
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<td>Perform a data-mining and analytics operation in an ERP system.</td>
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<td>Describe the components of MIS and the business processes it manages.</td>
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<td>Identify the characteristics and activities of the system development life cycle.</td>
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<td>Describe cyber security.</td>
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<td>Analyze the effectiveness of an organization’s security program.</td>
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<td>Describe the relationship between procurement and supply chain management.</td>
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<td>Identify quality issues in procurement.</td>
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<td>Describe global procurement.</td>
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<td>91</td>
<td>Describe the procurement process in an ERP system, including organization and master data.</td>
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</table>

### Entrepreneurship Infusion Units

Entrepreneurship Infusion Units may be used to help students achieve additional, focused competencies and enhance the validated tasks/competencies related to identifying and starting a new business venture. Because the unit is a complement to certain designated courses and is not mandatory, all tasks/competencies are marked “optional.”
Appendix: Credentials, Course Sequences, and Career Cluster Information

Industry Credentials: Only apply to 36-week courses

- College and Work Readiness Assessment (CWRA+)
- National Career Readiness Certificate Assessment
- Workplace Readiness Skills for the Commonwealth Examination

Concentration sequences: A combination of this course and those below, equivalent to two 36-week courses, is a concentration sequence. Students wishing to complete a specialization may take additional courses based on their career pathways. A program completer is a student who has met the requirements for a CTE concentration sequence and all other requirements for high school graduation or an approved alternative education program.

- Global Logistics and Enterprise Systems II (8422/36 weeks)

Career Cluster: Transportation, Distribution and Logistics

<table>
<thead>
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<th>Pathway</th>
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<td>Logistics Planning and Management Services</td>
<td>Logistics Analyst</td>
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<tr>
<td></td>
<td>Logistics Engineer</td>
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<tr>
<td></td>
<td>Logistics Manager</td>
</tr>
<tr>
<td>Transportation Operations</td>
<td>Transportation Manager</td>
</tr>
<tr>
<td>Transportation Systems/Infrastructure Planning, Management and Regulation</td>
<td>Civil Engineer</td>
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<td></td>
<td>Traffic Engineer</td>
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<tr>
<td></td>
<td>Transportation Manager</td>
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<tr>
<td></td>
<td>Urban, Regional Planner</td>
</tr>
<tr>
<td>Warehousing and Distribution Center Operations</td>
<td>Traffic Engineer</td>
</tr>
<tr>
<td></td>
<td>Transportation Manager</td>
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</tbody>
</table>